

the first embodiment;

Figure 4a and Figure 4b show the processing operations performed by the apparatus in the system of Figure 1 in the first embodiment to generate data defining a 3D computer model of an object;

Figure 5 illustrates the recording of images of an object for which a 3D computer model is to be generated;

Figure 6 illustrates images of the object which are input to the processing apparatus 2,4 in Figure 1 and stored at step S4-30 in Figure 4a;

Figure 7 illustrates how a viewing camera for the 3D computer model is defined at step S4-40 in Figure 4b;

Figure 8 shows the processing operations performed to display images of the 3D computer model in the first embodiment where 3D data is sent to the viewing apparatus and the viewing apparatus processes the 3D data to generate image data;

Figure 9 shows the processing operations performed to display images of the 3D computer model in the first

embodiment where the 3D data is processed by the apparatus storing the data and image data is sent to the viewing apparatus;

5 Figure 10 illustrates how the features in the pattern shown in Figure 2 are defined in a coordinate system in a second embodiment;

10 Figure 11 shows processing operations performed in a seventh embodiment;

Figure 12 shows the processing operations performed at steps S11-6 and S11-8 in Figure 11; and

15 Figure 13 shows processing operations performed in an eighth embodiment.

#### First Embodiment

20 Referring to Figure 1, an embodiment of the invention comprises a plurality of computer processing apparatus 2, 4, 6 connected to exchange data by transmitting signals 7 via a communications network 8, such as the Internet.

In this embodiment each processing apparatus 2, 4 is used by a customer, and has connected thereto a display device 14, such as a conventional personal computer monitor and a digital camera 16. In addition, the processing apparatus 2 has connected thereto a printer 18, and processing apparatus 4 has connected thereto a horizontal flat display panel 19 having controllable pixels, such as the PL400 manufactured by WACOM.

Each of the processing apparatus 2, 4 is a conventional personal computer programmed to operate in accordance with programming instructions input, for example, as data stored on a data storage medium, such as disk 10, and/or as a signal 12 input to the processing apparatus 2, 4, for example from a remote database, by transmission over a communication network such as the Internet 8 or by transmission through the atmosphere and/or by a user via a user input device such as keyboard (not shown).

Processing apparatus 6 is provided by a network auction company. In this embodiment, processing apparatus 6 comprises a conventional programmable computer, containing in a conventional manner, one or more processors, memories, graphics cards, etc.